UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

DIVISION OF
CORPORATION FINANCE

March 26, 2015

Via E-mail
David Hall
Chief Executive Officer
Replicel Life Sciences, Inc.
Suite 2020 – 401 West Georgia Street
Vancouver, British Columbia, Canada
V6B5A1

Re: Replicel Life Sciences, Inc.
Form 20-F for the Year Ended December 31, 2013
Filed March 18, 2014
Responses Dated March 17, 2015 and February 24, 2015
File No. 000-50112

Dear Mr. Hall:

We have reviewed your filing and responses and have the following comments. In some of our comments, we may ask you to provide us with information so we may better understand your disclosure.

Please respond to this letter within ten business days by providing the requested information or by advising us when you will provide the requested response. If you do not believe our comments apply to your facts and circumstances, please tell us why in your response.

After reviewing any information you provide in response to these comments, we may have additional comments.

Form 20-F for the Year Ended December 31, 2013
Notes to the Consolidated Financial Statements, page 8
Note 9. Licensing Revenue, page 26

We have considered your responses to our letter dated January 26, 2015. Please address the following:

1. We note that Article 2 of the Collaboration and Technology Transfer Agreement or ("CTTA") identifies the scope of the transfer of technology and collaboration under the agreement. Specifically, Article 2 identifies the following within the scope of the transfer of technology and collaboration:

    2.1 - Technology Transfer
    2.2 - Collaboration
    2.3 - Joint Steering Committee

2.4 - Manufacturing and Supply of Collaboration Product in the Shiseido Territory

Please explain to us how you have applied the revenue recognition criteria to each of these four discrete components identified in the CTTA. Refer to paragraph 13 of IAS 18.

2. Article 4 of the CTTA sets forth the milestone and royalty payments "as consideration for the Technology Transfer and the grant of the licenses by RepliCel to Shiseido." We note that you have concluded that the initial payment of four hundred million yen is the consideration for the Technology Transfer. We also note that the paragraphs 1.23 and 2.1 define Technology Transfer as "RepliCel will transfer to Shiseido the Transfer Technology for use in the Shiseido Field within the Shiseido Territory (the "Technology Transfer") as further set forth herein." The CTTA also defines Transfer Technology as follows:

> ***1.25** " **Transfer Technology** " means RepliCel's technologies to treat hair loss and promote hair growth with cell-based technology referred to by the Parties as RCH-01, and includes the RepliCel Core Intellectual Property Rights and any Confidential Information provided by RepliCel to Shiseido. For the sake of clarity, any and all enhancement, addition, modification or upgrade to RCH-01, which RepliCel will produce not jointly with Shiseido, shall be a part of Transfer Technology; and*

Please explain to us how you have applied the revenue recognition criteria to the components of the transfer technology which appear to include the technology existing at the time the agreement was executed and any and all enhancement, addition, modification or upgrade to RCH-01, which RepliCel will produce not jointly with Shiseido. Refer to paragraph 13 of IAS 18.

3. We note in your response to comment three of our letter dated January 26, 2015 where you state that in practice, the Company is working with Shiseido to develop the technology in order to take advantage of each other's improvements and test results and it does not anticipate making any improvements independently. You also state that at the bi-annual Joint Steering Committee meetings, the Company and Shiseido discuss clinical and research developments and the progress each party has made in the past six months; and that employees of the Company and Shiseido communicate frequently outside the meetings of the Joint Steering Committee regarding reagents, data, and protocol questions relation to the RCH-01 technology. We further note in your March 12, 2015 press release that representatives of RepliCel's management and R&D teams will be in Japan for over a week conducting closed-door meetings with its partner Shiseido and the Japanese Pharmaceutical and Medical Devices Agency (PMDA). Please advise us of the following as related to the RCH-01 technology:

- Describe to us in sufficient detail and in plain English the composition and state of the RCH-01 technology at the initial Technology Transfer date resulting from the work performed by RepliCel up to the point of transfer.

- Describe to us in sufficient detail and in plain English the type(s) and extent of any improvements made to the RCH-01 technology subsequent to the initial 2013 Technology Transfer date, and tell us the source of each type of improvement (i.e. the Company, Shiseido or joint development). This includes any improvements in addition to those described in response to comment four of our letter dated January 26, 2015.

- For each Joint Steering Committee meeting and any other meetings between the Company and Shiseido, please provide us with either the meeting minutes or a summary of the meeting activities and discussion topics.

4. We note in your response to comment two of our letter dated January 26, 2015 where you state that a saleable product or use of the technology to create a saleable product did exist at the time of the completion of the Technology Transfer although Shiseido needs to obtain the required regulatory approvals before it can commence sales of the product. You also state that Shiseido simply has to obtain the required regulatory approvals in order to proceed with the exploitation of the technology to create the saleable product. Please advise us of the following:

- Tell us whether Shiseido has obtained the required regulatory approvals in order to commence sales of the product or if they have begun the process to obtain approval.

- To the extent applicable, tell us the date Shiseido began the process to obtain regulatory approval and the date that Shiseido obtained regulatory approval.

- To the extent that regulatory approval has not yet been received by Shiseido, please further explain your statements that a saleable product or use of the technology to create a saleable product did exist at the time of the completion of the Technology Transfer; and that Shiseido simply has to obtain the required regulatory approvals in order to proceed with exploitation of the technology to create the saleable product. In this regard, it appears that the Company has been working with Shiseido since the 2013 Technology Transfer in order to further develop the technology.

5. In your letter dated March 17, 2015 you state that "[T]here are obligations in the event the Company creates an Improvement but the Company is under no obligation to create any Improvement." We note your disclosure on page 18 of your Form 20-F that:

"We expect to initiate a phase 2 dose-finding trail for RCH-01 in 2014. The proposed trial will enroll approximately160 male subjects in good health with mild to moderate androgenetic alopecia. After injections of RCH-01 are performed, subjects will return to the clinic for assessment of total, terminal and vellus hair density and cumulative hair thickness, as well as safety. The primary endpoint of efficacy will be measured at 12 months post final injection". Please tell us the nature and extent of your activities, independent of Shiseido, to research, test, and develop the technology you have transferred to Shiseido under the CTTA. Additionally, given your current plans, please explain your obligations under the CTTA if any Improvement or enhancement, addition, modification or upgrade to RCH-01 were to result from your independent activities.

You may contact Steve Lo at 202-551-3394 or John Archfield at 202-551-3315 if you have questions regarding these comments.

Sincerely,

/s/Tia L. Jenkins

Tia L. Jenkins
Senior Assistant Chief Accountant
Office of Beverages, Apparel, and Mining